

## Introduction

Your choice of this product indicates that you are a devotee to excellence in sound reproduction.

We appreciate your patronage and take pride in the long tradition of quality components.

So that you can get the most out of your unit, we suggest that you take the time to read through this manual before you hook up and operate your system. This will acquaint you with operating features, and system-connection considerations, so that your listening pleasure will be enhanced right from the start. You will notice that in all aspects of planning, engineering, styling, operating convenience and adaptability, we have sought to anticipate your needs and desires.

**Keep this manual handy for future reference.**

### For your records

Record the serial number, found on the back of the unit, in the spaces designated on the warranty card, and in the space provided below. Refer to the model and serial numbers whenever you call upon your dealer for information or service on this product.

Model KT-87 Serial Number \_\_\_\_\_

### Unpacking

Unpack the unit carefully and make sure that all accessories and cables are put aside so they will not be lost. Examine the unit for any possibility of shipping damage. If your unit is damaged or fails to operate, notify your dealer immediately. If your unit was shipped to you directly, notify the shipping company without delay. Only the consignee (the person or company receiving the unit) can file a claim against the carrier for shipping damage.

We recommend that you retain the original carton and packing materials for use should you transport or ship the unit in the future.

### Note to CATV system installer:

This reminder is provided to call the CATV system installer's attention to Article 820 – 22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

### Accessories

|                             |   |
|-----------------------------|---|
| RCA pin plug cord .....     | 1 |
| AM loop antenna .....       | 1 |
| AM loop antenna stand ..... | 1 |
| FM T shaped antenna .....   | 1 |

## Contents

**Caution: Read the following pages marked in ▲ carefully to keep your safety.**

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## Before applying power

### Important!

#### U.S.A. and Canada

Units shipped to the U.S.A. and Canada are designed for operation on 120 V AC only. These units are not equipped with an AC voltage selector switch and the discussion of such a switch that follows, should be disregarded.

#### All other countries

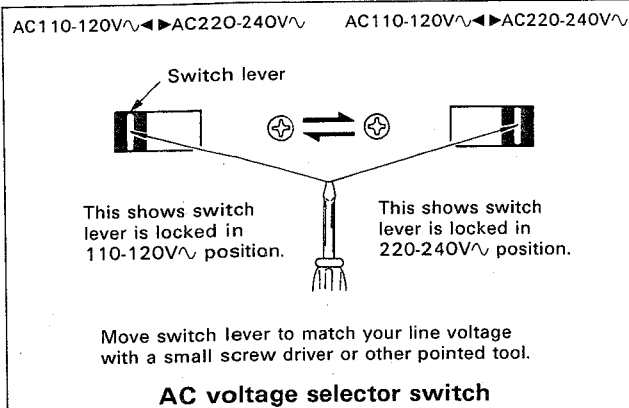
Units shipped to countries other than the above countries are equipped with an AC voltage selector switch on the rear panel. Refer to the following paragraph for the proper setting of this switch.

### AC voltage selection

These units operates on 110-120 volts or 220-240 volts AC. The AC voltage selector switch of the amplifier is set to the voltage that prevails in the area to which the units was shipped. Before connecting the power cord to your AC outlet, make sure that the setting position of this switch matches your line voltage. If not, it must be set to your voltage in accordance with the following direction.

#### Note:

Our warranty does not cover damage caused by excessive line voltage due to improper setting of the AC voltage selector switch.



## Safety precautions

### Safety precaution for AC plug (For U.S.A. and Canada)

**CAUTION:** TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

### WARNING:

TO PREVENT FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

|                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <div data-bbox="236 1601 491 1684"><b>CAUTION</b><br/>RISK OF ELECTRIC SHOCK<br/>DO NOT OPEN</div>  | CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.                                                                                                                   |
|                                                                                                                                                                                         | THE LIGHTNING FLASH WITH ARROWHEAD SYMBOL, WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE USER TO THE PRESENCE OF UNINSULATED "DANGEROUS VOLTAGE" WITHIN THE PRODUCT'S ENCLOSURE THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK TO PERSONS. |
|                                                                                                                                                                                         | THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE USER TO THE PRESENCE OF IMPORTANT OPERATING AND MAINTENANCE (SERVICING) INSTRUCTIONS IN THE LITERATURE ACCOMPANYING THE APPLIANCE.                                                                  |

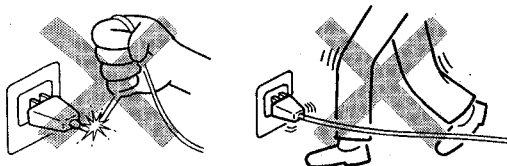
## Important safeguards

Please read all of the safety and operating instructions before operating this unit. For best results, follow all warnings placed on the unit and adhere to the operating and use instructions. These safety and operating instructions should be retained for future reference.

**1. Power sources** – The unit should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

**2. Power-cord protection** – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from the unit.

Never pull or stretch the cord.

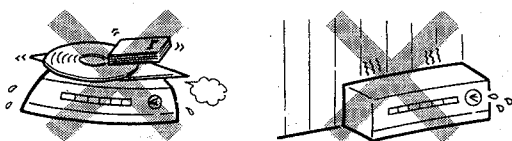


**3. Grounding or polarization** – Precautions that should be taken so that the grounding or polarization means of this unit is not defeated.

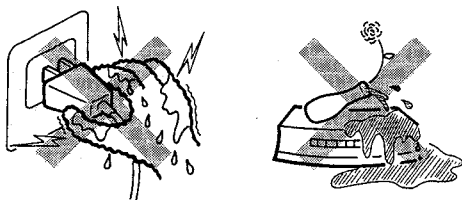
**4. Ventilation** – The unit should be situated so that its location or position does not interfere with its proper ventilation.

To maintain good ventilation, do not put records or a table-cloth on the unit. Place the unit at least 10 cm away from the walls.

Do not use the unit on a bed, sofa, rug or similar surface that may block the ventilation openings.

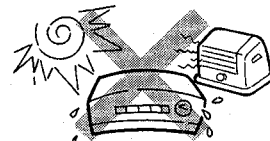


**5. Water and moisture** – The unit should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

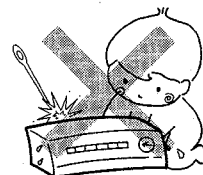


**6. Temperature** – The unit may not function properly if used at extremely low, or freezing temperatures. The ideal ambient temperature is above +5°C (41°F).

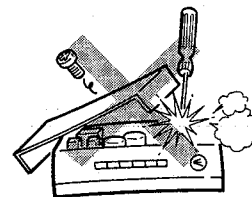
**7. Heat** – The unit should be situated away from heat sources such as radiators, heat registers, stoves, or other units (including amplifiers) that produce heat.



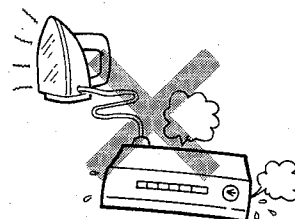
**8. Electric shock** – Care should be taken so that object do not fall and liquid are not spilled into the enclosure through openings. If a metal object, such as a hair pin or a needle, comes into contact with the inside of this unit, a dangerous electric shock may result. For families with children, never permit children to put anything, especially metal, inside this unit.



**9. Enclosure removal** – Never remove the enclosure. If the internal parts are touched accidentally, a serious electric shock might occur.



**10. AC outlets** – Do not connect other audio equipment with a power consumption larger than that specified to the AC outlet on the rear panel. Never connect other electrical units, such as an iron or toaster, to it to prevent fire or electric shock.

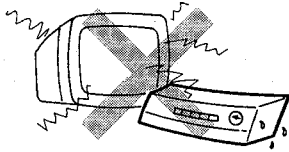


The maximum capacities indicated for the AC outlets on the rear panel of the this unit are as follows.

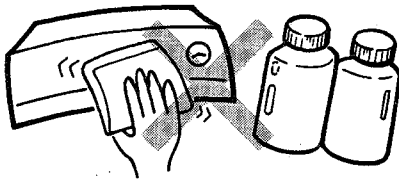
1. SWITCHED outlets ; 700W
2. UNSWITCHED outlets ; 100W

**⚠ Caution: Read this page carefully to keep your safety.**

- 11. Magnetic fields** – Keep the units away from a source of magnetic fields such as TV sets, speaker systems, radios, motorized toys or magnetized objects.



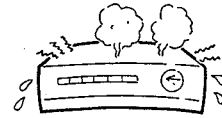
- 12. Cleaning** – Do not use volatile solvents such as alcohol, paint thinner, gasoline, benzene, etc. to clean the cabinet. Use a clean dry cloth.



- 13. Nonuse periods** – The power cord of the unit should be unplugged from the outlet when left unused for a long period of time.

- 14. Abnormal smell** – If an abnormal smell or smoke is detected, immediately turn the power OFF and pull out the power cord. Contact your dealer or nearest service station.

## POWER OFF!



- 15. Damage requiring service** – The unit should be serviced by qualified service personnel when:
- A.** The power-supply cord or the plug has been damaged; or
  - B.** Objects have fallen, or liquid has been spilled into the unit; or
  - C.** The unit has been exposed to rain; or
  - D.** The unit does not appear to operate normally or exhibits a marked change in performance; or
  - E.** The unit has been dropped, or the enclosure damaged.

- 16. Servicing** – The user should not attempt to service the unit beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

- 17. Outdoor antenna grounding** – If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70 – 1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure.

<sup>a</sup> Use No.10 AWG (5.3 mm<sup>2</sup>) copper, No.8 AWG (8.4 mm<sup>2</sup>) aluminum, No.17 AWG (1.0 mm<sup>2</sup>) copper-clad steel or bronze wire, or larger, as a ground wire.

<sup>b</sup> Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4 – 6 feet (1.22 – 1.83 m) apart.

<sup>c</sup> Mount antenna discharge unit as close as possible to where lead-in enters house.

<sup>d</sup> Use jumper wire not smaller than No.6 AWG (13.3 mm<sup>2</sup>) copper, or the equivalent, when a separate antenna-grounding electrode is used. See NEC Section 810-21(j).

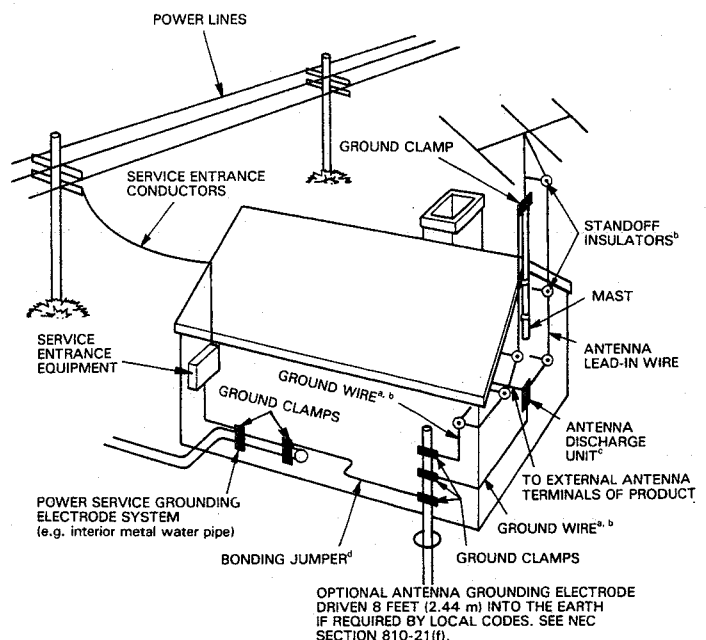


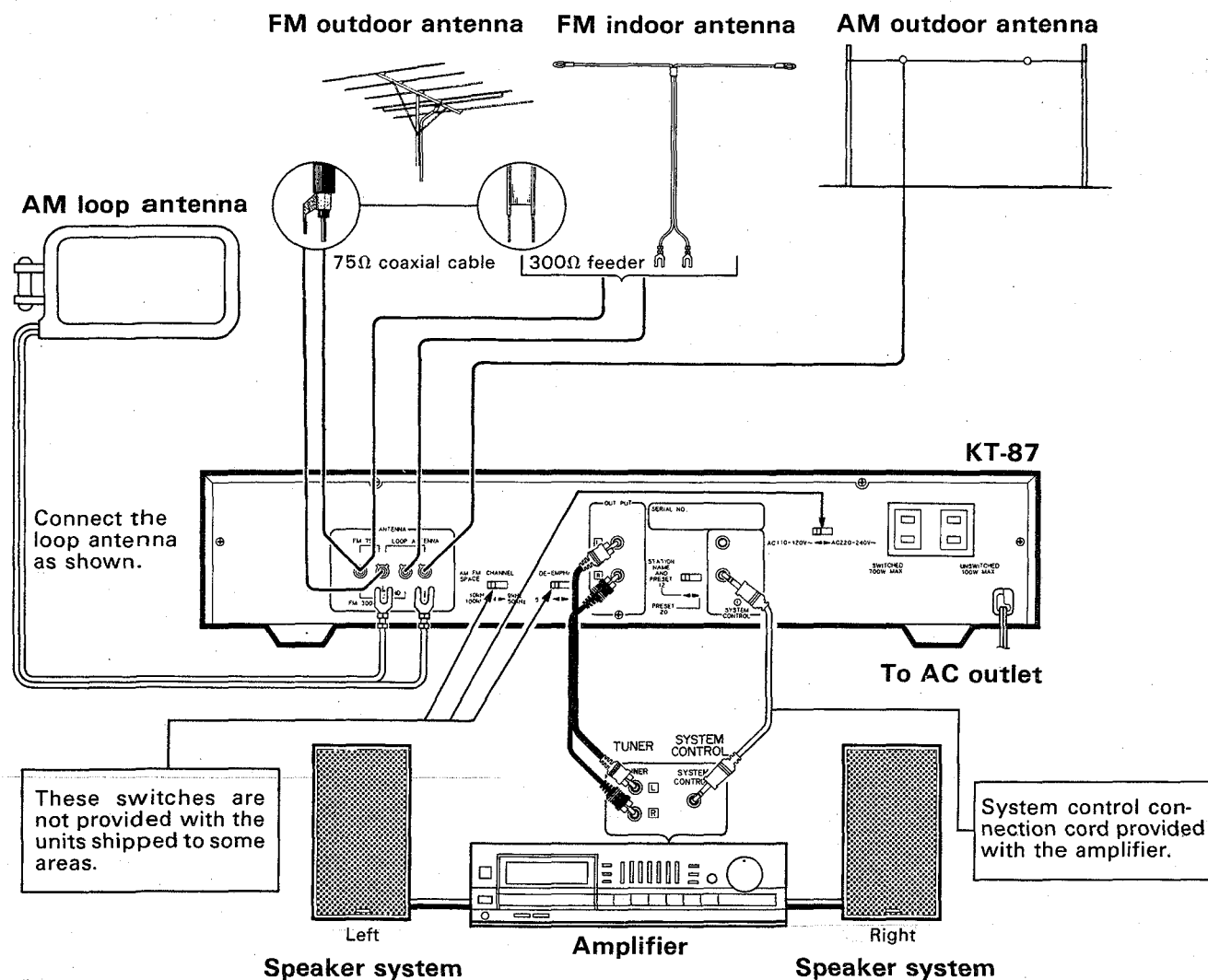
FIGURE  
EXAMPLE OF ANTENNA GROUNDING ACCORDING TO  
THE NATIONAL ELECTRICAL CODE INSTRUCTIONS  
CONTAINED IN ARTICLE 810 – "RADIO AND  
TELEVISION EQUIPMENT"

- 18. Power lines** – An outdoor antenna should be located away from power lines.

### Notes:

1. Item 3 is not required except for grounded or polarized equipment.
2. Item 10 is not required except for units provided with AC outlets.
3. Item 17 and 18 are not required except for units provided with antenna terminals.

# System connections



## ■ System control terminal

A system control terminal is provided on the rear panel, allowing the remote control of the tuner when the terminal is connected to the system control terminal on the amplifier. For the remote control range and control method, please refer to the instruction manual of an amplifier equipped with the system control terminal (KC-207, for example).

## Output

Signals from the output jacks are fed to the amplifier. Connection cables should be plugged to the amplifier TUNER or AUX jacks. Shielded cables terminated at both ends with standard phono plugs are supplied with this tuner.

## AC outlet

The AC outlets on the rear panel can be used to supply power to other components in the system. Never connect equipment whose power consumption exceeds the maximum value shown at each outlet.

**SWITCHED:** This outlet supplies power when the unit is set to tuner mode or the built-in timer is activated.

- The maximum capacity is 700W.

**UNSWITCHED:** The outlet provides power when the unit is plugged into an active AC wall outlet, regardless of the setting of the POWER switch.

- The maximum capacity is 100 W.

## Ground

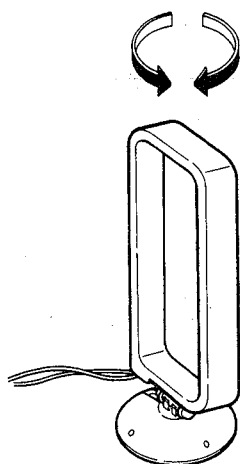
For maximum safety and minimum interference connect the GND terminal to a good earth ground if practicable. A good earth ground is a cold water pipe or a metal stake driven into moist earth. However, never use a gas pipe for this purpose.

## AM antennas

### AM loop antenna

Install the AM loop antenna to the supplied loop antenna stand and place them on a shelf, etc., or install them in the rack or wall with screws.

Rotate the AM loop antenna to the right or left for best reception.



Loop antenna stand

#### Note:

Do not place the AM loop antenna on the unit. As this unit employs computing device, placing the AM loop antenna on the unit may result in noise generation. Place the AM loop antenna away from the unit.

## AM outdoor antenna

In steel buildings or at a great distance from the transmitter, it may be necessary to install an outside long wire antenna. The end of this wire should be stripped of insulation and connected to the AM terminal. At this time, keep the loop antenna connected.

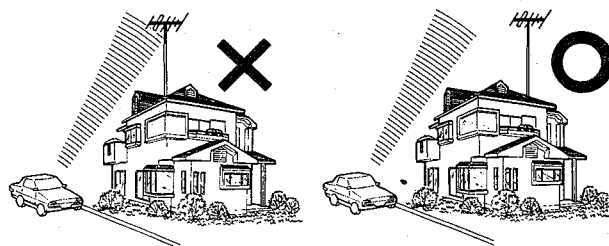
## FM antenna

Your tuner approaches the theoretical limit in FM sensitivity. However, the performance of your system is determined to a very large extent upon the signal conditions where the antenna is placed. The reason is that FM broadcast signals travel in straight paths. Therefore they can be blocked by natural or man-made obstructions such as mountains, hills or buildings. At large distances from the transmitter the curvature of the earth acts as a screen between the transmitter and receiver.

Consider the signal conditions in planning your installation. If you live in or near an urban area the indoor antenna (supplied) may serve your needs adequately. However, if desired stations are weak due to natural obstructions, or if you live in a building which is made of steel-reinforced concrete (which acts as a shield) it may be necessary to install a good outdoor antenna.

## FM outdoor antenna

Consult with your dealer or service man about the best method of selecting and erecting an outdoor FM antenna. The choice of lead-in (feeder) wire is also important. The flat ribbonshapped twin lead performs well electrically, is cheaper and is somewhat easier to handle in routing through windows and around rooms. Coaxial cable is more expensive, does a much better job of minimizing interference, is less prone to the effects of weather and close-by metal objects, and is nearly as good a signal conductor as the ribbon type wire. The latter is particularly true of foam-type coaxial cables. Coaxial cable is somewhat more difficult to install at the point where the cable enters the building. If coaxial cable is selected, make sure the antenna is designed to drive that type of cable.



- To minimize auto-ignition noise, locate the antenna as far from heavy traffic as possible.
- Keep the feeder or coaxial cable as short as possible. Do not bundle or roll up excess cable.
- The antenna should be at least two meters (6.6 feet) from reinforced concrete walls, or metal structures.

## FM outdoor antenna installation

#### Note:

Do not connect both the 300Ω feeder and 75Ω coaxial cable to the FM antenna terminal.

### FM indoor antenna

Connect the T-shaped indoor antenna (supplied) to the 300Ω FM ANTENNA terminals as shows in the System connections diagram. Spread the two arms that form the top of the "T" horizontally and hold them against convenient wall surfaces. Try several locations for best results on your desired stations. Tape the antenna in place where the best compromise is found between listening results and appearance.

### FM DE-EMPHASIS switch (rear panel)

(This switch is not provided to the units for some areas.)

This switch has been set to the correct position for a given market area. However, check to see that this switch is set correctly before operating your tuner. An incorrect setting will adversely affect high frequency performance. (The FM DE-EMPHASIS switch is not equipped with units shipped to Oceania.)

Europe and Oceania ..... 50  $\mu$ s  
Other countries ..... 75  $\mu$ s

### AM/FM CHANNEL SPACE switch (rear panel)

(This switch is not provided to the units for some areas.)

The CHANNEL SPACE switch on the rear plate is set to the correct setting that prevails in the area to which the unit is shipped. However, if the channel space setting is not matched to the area where the tuner is to be used; for instance, when you moved from area 1 to area 2 or vice versa, desired broadcasts. In this case, change the CHANNEL SPACE setting in accordance with the area corresponding to the table shown below.

| Area                                       | Channel Space Frq         |
|--------------------------------------------|---------------------------|
| 1 U.S.A., Canada<br>Hawaii, and Guam       | FM: 100 kHz<br>AM: 10 kHz |
| 2 European countries<br>Far East countries | FM: 50 kHz<br>AM: 9 kHz   |

Channel Space Table

### STATION NAME AND PRESET switch (rear panel)

- ☐ : When the station name is not displayed (10 stations for each A and B)
- ☐ : When the station name is displayed (6 stations for each A and B).
- This switch is factory set to the STATION NAME position.

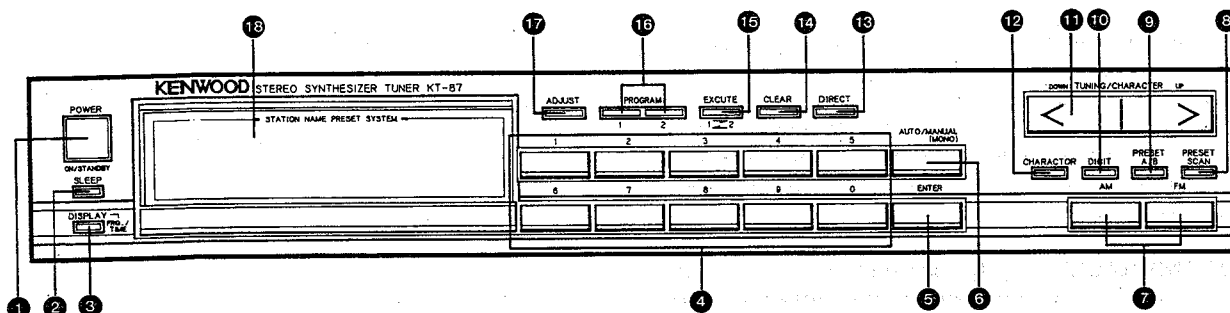


Refer to "Preset memory" on page 11.

#### Notes:

1. Operate the STATION NAME AND PRESET switch or the AM/FM CHANNEL SPACE switch after plugging out the power cord from the AC outlet.
2. To reset the switches equipped on the rear panel, slide the switch to the opposite side with a screwdriver or other pointed tool.

# Controls and indicators



## ❶ POWER switch

Press this switch to supply power. Press the switch again to turn the power off.

## ❷ SLEEP timer key

Press this key to set sleep timer (up to 60 minutes with 10 minutes intervals).

## ❸ DISPLAY (FRQ./TIME) key

Used to switch between the frequency and timer display modes.

## ❹ Numeric keys (1 ~ 0)

Used to set time and program timer. Also, these keys are used to preset broadcast stations.

## ❺ ENTER key

Press this key to activate the station memory and clock after entering the present time with the numeric keys.

## ❻ Tuning mode key (AUTO/MANUAL)

Press this key to select the tuning mode between AUTO or MANUAL. In MANUAL mode, an FM stereo broadcast is received in monaural.

## ❼ Band selector switches (FM, AM)

Press to select receiving band.

## ❽ PRESET SCAN key

When this button is pressed, each of the preset stations will be received for several seconds sequentially. When one preset station is being received, scanning starts from the next preset station. If not, scanning will start from the station preset in the A-1 channel.

## ❾ PRESET A/B selector switch

Press this switch to select the A or B preset station group.

## ❿ DIGIT key

When inputting the station name, press this key after selecting the character to memorize the character, and the unit enters the standby mode to inputting the next column.

## ⓫ TUNING/CHARACTER (DOWN, UP) key

**AUTO-tuning:** When the UP or DOWN side is pressed, the frequency automatically increases or decreases until the next station of sufficient signal strength is reached.

**MANUAL (MONO) tuning:** Each time the UP or DOWN side is pressed, the displayed frequency increases or decreases. When either side of the key is held down, the displayed frequency will continue to increase or decrease until the button is released.

## CHARACTER

**Station name entry:** When presetting each station, the station name (max. 4 Characters) can also be preset along with the frequency using this key. For details, refer to "Presetting memory" on page 10 and "Station name indication" on page 11.

## ⓬ CHARACTER key

Press this key to set or release the station name input mode. This key is valid when the unit is in the "station name indication present" mode.

## ⓭ DIRECT tuning key

When this key is pressed, the desired broadcast can be received by inputting the frequency of the station.

## ⓮ CLEAR key

Press this key to cancel the input mode of the time or program timer. When this key is pressed, the input mode returns to the previous one. In the station mode, it returns to the first column of the four characters.

## ⓯ EXECUTE 1 = 2 key

Press this key to select the 1 or 2 program of the timer and both 1 and 2 programs can also be selected. Also it returns to the first column of the four characters.

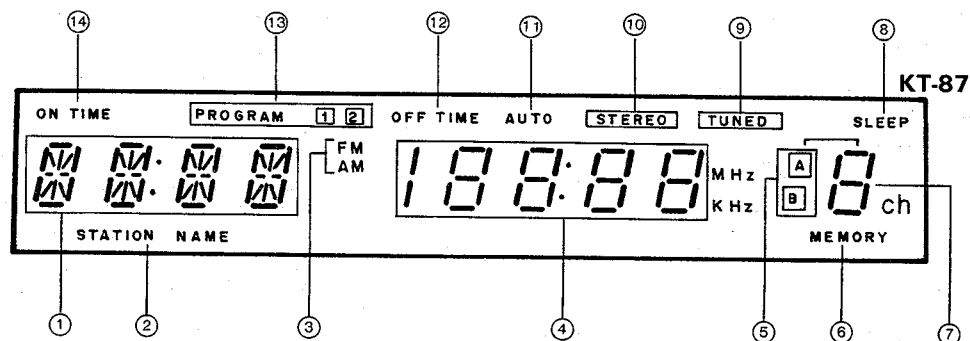
## ⓰ PROGRAM 1,2 keys

Press this key to set programming timer

## ⓱ ADJUST key

Press this key to adjust the clock time.

## 18 Display



### ① STATION NAME/TIME display

Display the station name or ON time.

### ② STATION NAME indicator

### ③ Band indicators

Indicate the reception band.

### ④ Frequency/time display

Displays the receiving frequency, current time or OFF time.

### ⑤ Preset function indicator A/B

Indicate the preset function A or B.

### ⑥ MEMORY indicator

Lights for about 5 seconds when the ENTER key is pressed in tuner mode.

### ⑦ Preset channel indicators

Indicate the pressed numeric key.

### ⑧ SLEEP timer indicator

Lights when the sleep timer is set.

### ⑨ TUNED indicator

Lights when the station is tuned in correctly.

### ⑩ STEREO indicator

Lights when an FM stereo broadcast with a sufficient signal strength is received.

### ⑪ AUTO indicator

Lights when the tuning mode is set to AUTO with the tuning mode key.

### ⑫ OFF time display

Displays the OFF time of the program timer.

### ⑬ PROGRAM 1/2 indicators

Blinks when setting the program timer.

### ⑭ ON time display

Displays the ON time of the program timer.

# Operating instructions

## ■ Setting the current time

1. Confirm that the frequency/time display is in the time display mode.  
When the frequency/time display is in the frequency display mode, press the DISPLAY key or power switch to turn OFF.
2. Press the ADJUST key.  
The hour display of the left starts flashing.



3. Input the current time using the numeric key (1 to 0).  
The clock employs 24-hour system. Press the numeric keys as follows.

AM 9:05      Input in the order of  
                 0-9-0-5  
PM 4:50      Input in the order of  
                 1-6-5-0



When 4 digits are input, the entire time display flashes.  
To change the input digit, press the CLEAR key and proceed the above steps again.

4. Press the ENTER key.  
The time display illuminates.



illuminates.

When the ENTER key is pressed, the clock starts.  
Press the ENTER key according to the time signal of the radio or telephone service.

### Note:

When the time display flashes, this indicates the power failure occurred. At that time, reset the current time.

## ■ Listening to broadcasts

### Auto tuning

1. Press the POWER switch.
2. Set the input mode of the amplifier to tuner.
3. Select the reception band with the band selector switches.
4. Press the tuning mode key so that the AUTO indicator lights.
5. Press UP or DOWN side of the TUNING/CHARACTER key.  
The unit starts scanning in the specified direction and stops at a station with a sufficient signal strength.
6. Adjust the volume control of the amplifier.

### Manual tuning

1. Press the POWER switch.
2. Set the input mode of the amplifier to tuner.
3. Select the reception band with the band selector switches.
4. Press the tuning mode key so that the AUTO indicator disappears. In the FM band, the MONO indicator lights.
5. Press UP or DOWN side of the TUNING/CHARACTER key until the desired station is received.  
When the TUNING/CHARACTER key is kept pressed, the displayed frequency changes rapidly.
6. Adjust the volume control of the amplifier.

### Direct station tuning

1. Press the DISPLAY key to set the display window to the frequency mode.

2. Select the desired band with the band select switches (AM/FM).
3. While the frequency indicator is displayed, press the DIRECT key.
4. Input the number of the frequency with the numeric keys.
5. When the input frequency is within the range of the band, the station of the input frequency is received immediately after the final column is input.  
If the input frequency is out of the range of the band, the frequency indicator flashes for 5 seconds, then the display mode before pressing the DIRECT key resumes.
6. During inputting the frequency, when the incorrect numeric key is pressed by mistake and is noticed, press the CLEAR key to return to the standby mode for the first column input.

## ■ Preset memory

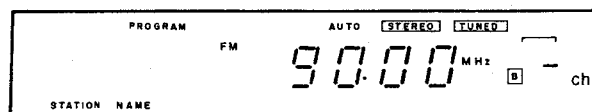
With the station name displayed, a total of 12 stations can be preset, and with the station name not displayed, a total of 20 stations can be preset for AM or FM broadcast. (Select the number of preset stations with the STATION NAME AND PRESET switch located on the rear panel of the tuner.)

### How to preset

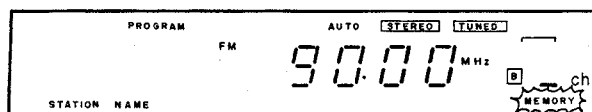
1. Press the DISPLAY key to set the display to the frequency display mode.
2. Press the AM or FM band select switch.
3. Receive the desired station to be memorized with the TUNING/CHARACTER key or DIRECT tuning function.  
At this time, input the station name if required, referring to "Station Name Indication" on page 11. (This operation is possible after memorizing the frequency.)
4. Press the ENTER key.  
"MEMORY" displays in the display window.
5. Select the A or B preset group with the PRESET A/B switch.  
When this is not done, the preset group which is currently indicated is selected.
6. Within 5 seconds, press any of 1 to 6 preset channel keys (when the station name is displayed) or 1 to 0 keys (when the station name is not displayed).  
The MEMORY indicator in the display window goes off and the preset indicator will light.  
In the same way, preset the other stations. When presetting the station into the "10" preset channel, press the "0" numeric key.

- Example: To memorized 90.0 MHz into A-3 channel (station name display mode)

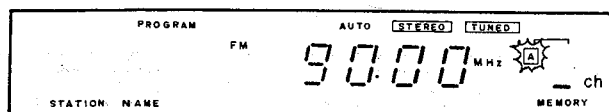
1. Receive the desired station with the UP/DOWN key or DIRECT key.



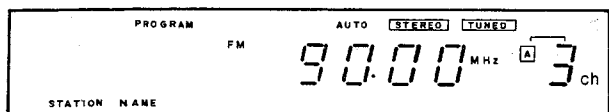
2. Press the ENTER key on. "MEMORY" lights.



3. Press the Preset A/B switch once to indicate "A".



4. Press "3" key on. "MEMORY" goes off, and "3" lights.



#### ● STATION NAME AND PRESET switch located on the rear panel of the tuner

- : When the station name is not displayed (10 stations for each A and B)
- : When the station name is displayed (6 stations for each A and B)
- This switch is factory set to the STATION NAME position.



#### Note:

1. When the station is memorized into the preset number in which another station has been preset, the previously-preset station will be cleared and the newly-preset station will be memorized. Be sure to press the numeric key (1 to 0) after releasing the ENTER key.  
If the numeric key (1 to 0) is pressed while the ENTER key is pressed, the same frequency may also be memorized into the other preset channel.
2. In the station name display mode (when the STATION NAME AND PRESET switch on the rear panel is set to "12" position), the 7 to 0 preset channel are invalid.
3. Operate the preset station number switch on the rear panel after plugging out the power cord from the AC outlet.
4. If you perform the above operation after you have once preset the tuning station, the preset contents will be erased.

#### ■ Recalling the preset memory

During the tuner functions, select "A" or "B" with the A/B select switch and press any of the numeric key. The memorized contents corresponding to the PRESET number pressed will be displayed.

When the A/B switch is not pressed, the memorized contents corresponding to the preset channel of the currently selected group will be recalled.

However, when the station name display mode is selected, from "7" to "0" preset channel do not function.

#### Note:

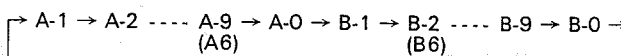
1. Since the plug-in backup system is provided with this tuner, the station frequencies preset in each preset channel key will not be cleared even when the POWER switch is set to the STAND BY position.  
However, when the AC power plug is disconnected from the AC outlet, the preset frequencies will be cleared approx. 3 days later.

#### Preset scan

During the tuner is functioning, when the PRESET SCAN key is pressed, each preset frequency will be received for 5 seconds sequentially.

If no station is preset in the preset channel, the next preset channel will be received after one second.

When any of the preset channel is currently received, the scanning starts from the next preset channel. If not, scanning will start from the A-1 preset channel.



( ) : in the STATION NAME display mode.

To release this function, press the PRESET SCAN key again.

#### Last channel memory

When the POWER switch is turned ON, or when the broadcast band (AM or FM) is changed to another, the last received channel of each band will be received. (Last channel memory function)

#### ■ Station name indication

##### (Station name preset)

Set the select switch located on the rear panel of the tuner to the STATION NAME PRESET 12 position.

#### Character input procedure

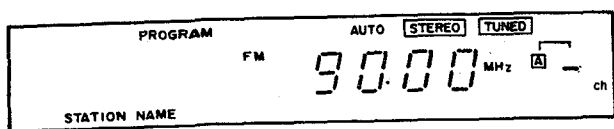
1. Tune to the desired station with the TUNING/CHARACTER key or the DIRECT tuning method.  
When the desired station has been preset, call the station with the corresponding PRESET A/B switch and preset channel keys.
2. Press the CHARACTER key to set the character input mode. The first column of the character display section begins flashing.
3. Press the TUNING/CHARACTER (UP, DOWN) key to select the character.
4. When the desired character is displayed, press the DIGIT key.  
Flashing will shift to the next column.
5. Repeat procedure 3 and 4 for four times to complete inputting. The character input mode will be released.
- When the incorrect character input by mistake and is noticed, press the CLEAR key to return to the standby mode for the first column input.
- Even in the middle of inputting, pressing the CHARACTER key again will release the character input mode. At this time, the data which has been input is valid.
- When the preset channel to be named is being received, the character data will be automatically stored in the currently-displayed preset channel after inputting operation is completed.

#### Note:

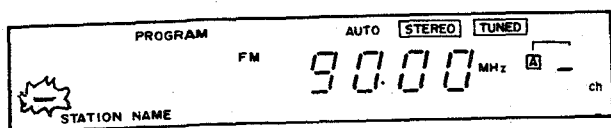
1. Disconnect the power plug of the tuner from the AC outlet before changing the setting of the select switch for the number of preset stations.
2. When the above operation is performed after the broadcast station has been preset, the preset contents will be cleared.

- Example 1: To receive the 90.0 MHz FM broadcast and input the characters "C.B.E" when the station other than the preset channel memories is received. Shows the indicator flashing.

1. Tune to 90.0 MHz FM broadcast.

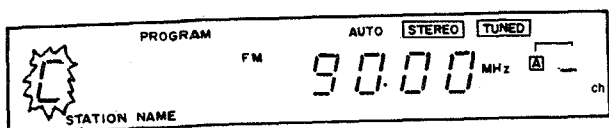


2. Press the CHARACTER key.

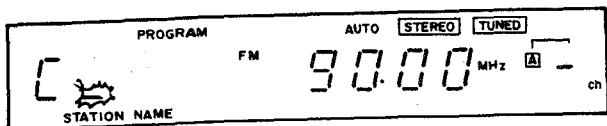


3. Press the TUNING/CHARACTER key three times to select "C".

→ A → B → C

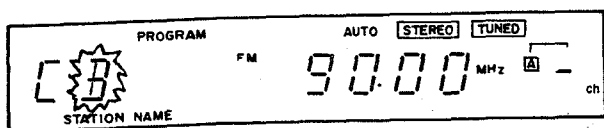


4. Press the DIGIT key.

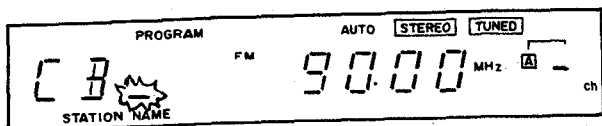


5. TUNING/CHARACTER UP key twice times to select "B".

→ A → B

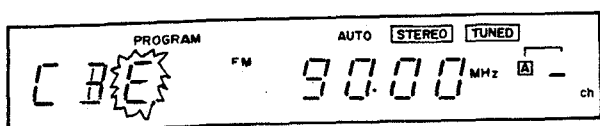


6. Press the DIGIT key.

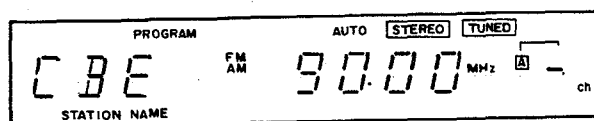


7. TUNING/CHARACTER UP key five times to select "E".

→ B → C → D → E



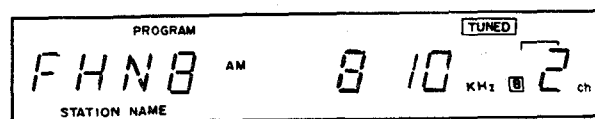
8. As the fourth column should be left blank, press the DIGIT key twice or press the CHARACTER key.



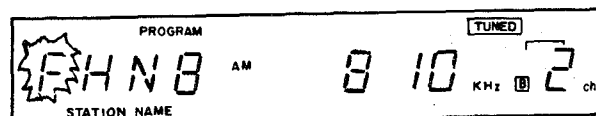
- After inputting is completed, memorize it into the desired preset channel according to the "Preset Station Tuning" section.

- Example 2: To change the station name from "FHN8" for 810 kHz AM broadcast memorized in B-2 preset channel to "FEN".

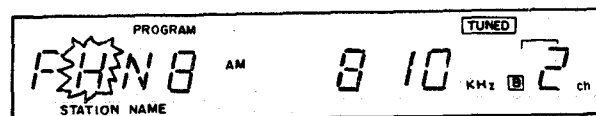
1. Recall the B-2 preset channel with the PRESET A/B switch and the PRESET button according to "Recalling the Preset Memory".



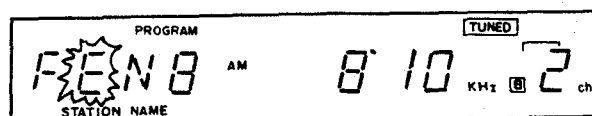
2. Press the CHARACTER key.



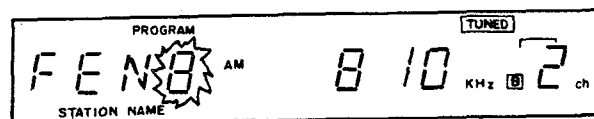
3. Press the DIGIT key to shift the flashing the character to the next column since the first character "F" should be left as it is.



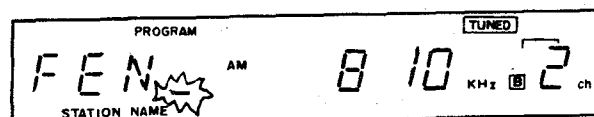
4. Press the TUNING/CHARACTER (DOWN) key to select "E".



5. Press the DIGIT key twice



6. Press the TUNING/CHARACTER key to select a blank.



- Press the DIGIT key or press the CHARACTER key.



## ■ Operating timer

### Setting the program timer

Timer setup procedure (The same procedure can be used for both PROGRAM 1 and PROGRAM 2.)

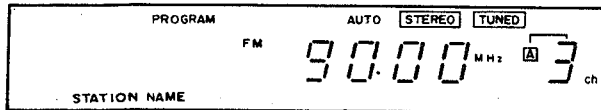
The timer can be set only when the POWER switch has been turned ON. When power is OFF, it is possible only to check the program contents.

During setup, the station which has been received is not changed, and the AUTO and band indications remain the same.

- Example 1: To set a Preset channel (B-2) in Timer 1 with ON TIME 8:45 and OFF TIME 9:35

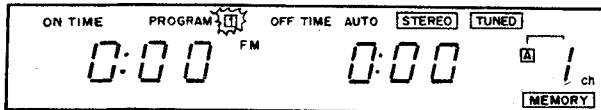
- Current condition.

Reception of FM 90.0 MHz stored in A-3.



- Displaying PROGRAM

Press the PROGRAM 1 key.



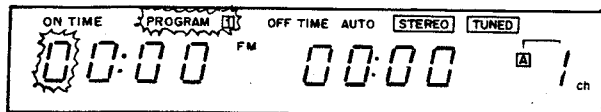
- When the PROGRAM 1 key is pressed, the "1" indicator flashes and the display shows the content of Program Timer 1.

The above display continues for approx. 5 seconds. During this period, press the ENTER key during to enter the Timer Setup mode.

When the PROGRAM1 key is pressed during this display period, the previous returns to the previous status.

- Starting setup

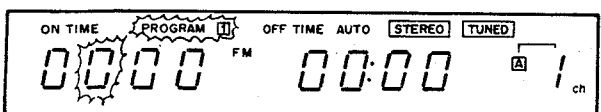
Press the ENTER key.



- When the ENTER key is pressed, the "PROGRAM 1" indicator flashes to indicate that the Timer Setup mode. At the same time, the first digit of the ON TIME display starts to flash, indicating the entry standby for this digit. If you find it unnecessary to change the current ON TIME, just press the ENTER key; you can then start the entry of the OFF TIME.

- Entry of ON TIME

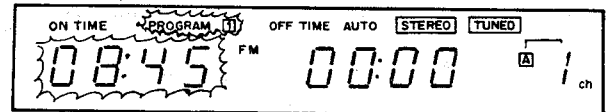
Press numeric key "0".



- When "0" is pressed, the first digit of the ON TIME display goes "0" which is lit continuously, and the second digit starts flashing.
- When you made a mistake in entry, press the CLEAR key; the display returns to the stage of entry standby for the first digit.

- Entry of ON TIME Using numeric keys

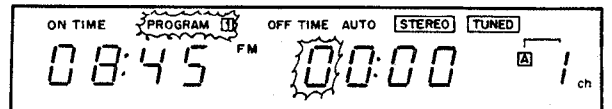
Enter "8", "4" then "5". Press these numeric keys within 15 seconds.



- When four ON TIME digits have been entered, all the ON TIME digits flashes to indicate the end of ON TIME entry. If the setup is correct, press the ENTER key. If the desired ON TIME is obtained by entering until the third digit, press the ENTER key after the third digit.
- To modify the ON TIME entered, press the CLEAR key; the display returns to the stage or entry standby for the first digit.

- Setting of ON TIME

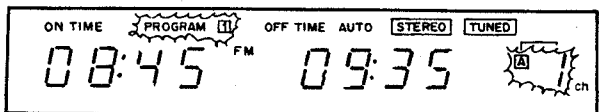
Press the ENTER key.



- When the ON TIME entry is finished, the ON TIME display lights continuously and the first digit of the OFF TIME display starts to flash, indicating the entry standby for this digit. If you found entry mistake at this time, press the CLEAR key; the display returns to the stage of entry standby for the first digit.

- Entry and setting of OFF TIME

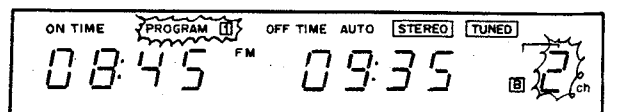
Press numeric keys "0", "9", "3" then "5", and press the ENTER key.



- When the ENTER key is pressed, the OFF TIME display lights continuously, indicating the end of OFF TIME entry. In its place, the preset channel display starts flashing to indicate the standby for preset channel entry.
- If you found entry mistake at this time, press the CLEAR key; the first press returns the display to the stage of entry standby for the OFF TIME first digit, and the second press returns it to the stage of entry standby for the ON TIME first digit again.

- Entry of preset channel

Select the preset channel group by pressing the PRESET A/B switch, then press numeric channel key "2".



- When the PRESET A/B switch is pressed, the other indicator that the currently-flashing indicator lights (A → B, or B → A). When the numeric key is pressed, the figure of the preset channel changes to that pressed.
- If you found entry mistake at this time, press the CLEAR key; the display returns to the status before the PRESET A/B switch was pressed.

9. End of timer setup  
Press the ENTER key.

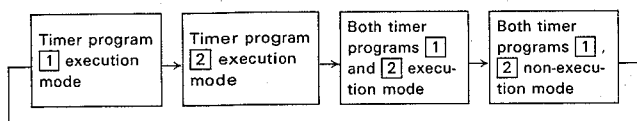


- When the preset channel number has been entered, press the ENTER key.  
The preset channel and PROGRAM indicators light continuously, indicating the end of timer setup. The above display continues for approx. 5 seconds, and the display returns to the initial status.

#### Note:

1. If the PROGRAM 1 key is pressed during timer setup operation, the timer setup mode is canceled and the display returns to the initial status.
2. When the station name display is applied, it is possible to select preset channels 1 to 6 for both A and B.

### Using the program timer



1. Press the POWER switch so that the unit is in the standby mode.
2. Press the EXECUTE 1 = 2 key to select the program timer to be used.  
To use program timer 1 or 2, press the EXECUTE 1 = 2 key so that the PROGRAM 1 or 2 indicator light.
3. When the preset ON TIME is reached, the program timer turns ON and the selected preset station is received.
4. When the preset OFF TIME is reached, the program timer turns OFF.

### To cancel the program timer

Press the EXECUTE 1 = 2 key so that the PROGRAM 1 and/or 2 indicator goes off.

### To check the contents of timer program

1. Press the PROGRAM 1 or 2 key in which the program to be checked is input. The contents of the selected program is displayed for 5 seconds.
2. Then the display before the key is pressed resumes.  
Even in the STAND BY mode (when only the time is displayed), pressing PROGRAM 1 or 2 key will display the program contents for 5 seconds, then the time display will resume.  
Setting the timer is possible only when the POWER switch is turned ON. When the POWER is OFF, only the program contents can be checked.

#### Notes:

1. The timer program functions only when the PROGRAM 1 or 2 indicator lights.
2. When the PROGRAM key is pressed or the POWER switch is pressed ON/OFF during the timer is activated, the program timer will not function correctly.
3. Be sure not to overlap the times when setting the programs 1 and 2. (Refer to the example in the figure on the right.)
  - When both 1 and 2 programs are input, the program 2 has a priority.
  - When the ON-time for the program 1 reaches during the program 2 is activated, the program 1 does not function.
  - When the ON-time for the program 2 reaches during the program 1 is activated, the program 2 begins functioning.
4. When functioning both program 1 and 2 sequentially, be sure to leave 1 minute between the OFF-time of the first program and the ON-time of the second program.

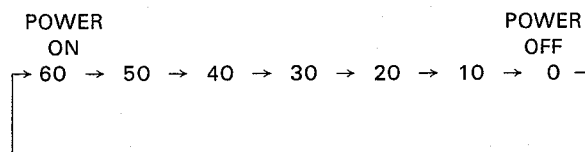
Example: When receiving 90.00 MHz FM broadcast for one hour from 8 o'clock and 954 kHz AM broadcast for one hour from 9 o'clock, set the ON-time for the program 1 to 8:00 and the OFF-time to 8:59, and set the ON-time for the program 2 to 9:00 and the OFF-time to 9:59.

5. When the timer function is activated. The same operation will be performed on the same times every day. When the timer operation is not required, release the timer function according to "To Deactivate the Timer Function".
6. On listening to the tuner with the timer function activated (when the PROGRAM 1 or 2 indicator lights), when the set time comes, the timer operation will function.  
At this time, the receiving station will be changed to the station which has been programmed for the timer. When recording the broadcast from the tuner, be sure to confirm the programmed contents of the timer.
7. The programmed contents of the timer cannot be canceled.  
When the timer is not used, be sure to release the timer function according to "To Deactivate the Timer Function".

### Using the sleep timer

The sleep timer can be used to turn the power OFF after up to 60 minutes. The power OFF time can be set with an interval of 10 minutes.

1. Press the SLEEP key.  
The SLEEP indicator lights and 60 is displayed.
2. To turn the power OFF within 60 minutes, press the SLEEP key.  
The displayed number changes as follows.



#### Notes:

1. The sleep timer has priority over the program timer.
2. When the remaining time or the SLEEP TIMER is displayed, pressing any of the preset channel key, TUNING/CHARACTER key, band select switch, etc. will display the frequency, then 5 seconds later, the remaining time display resumes.
3. When the remaining time is within 10 minutes, pressing the SLEEP key will turn the power OFF.
4. To release the SLEEP timer, press the POWER switch to turn the power OFF.
5. When the time is not set, the SLEEP timer is not displayed.

## In case of difficulty

If your tuner should not perform as expected, consult the table below to see if the problem can be corrected before seeking help from your dealer or service representative.

| Occurs during AM reception only                                                                      | Possible cause                                                                         | Remedy                                                                                                                                            |
|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| High-frequency whistle especially at night.                                                          | Interference from TV set.<br>Beats from adjacent AM station.                           | Turn off TV set, if problem disappears try relocating TV set.<br>Impossible to eliminate, but try HIGH filter of your amplifier.                  |
| Intermittent buzz or cracking sound.                                                                 | Lightning.<br>Fluorescent lamps starting.<br>Appliance or furnace starting.            | No remedy.<br>Try reversing AC plug.<br>Try reversing AC plug.                                                                                    |
| Occurs during FM reception only                                                                      | Possible cause                                                                         | Remedy                                                                                                                                            |
| Hiss that gets worse in stereo reception.                                                            | Very weak antenna input signal.                                                        | Consider an outdoor antenna installation. In areas remote from the transmitter a 5 to 8 element antenna designed exclusively for FM is suggested. |
| Rhythmic static or popping noises.                                                                   | Automobile ignition noise, especially evident when receiving weak signals.             | Review antenna installation. Site the antenna as far from the street as possible and use coaxial cable.                                           |
| STEREO indicator fails light during stereo broadcast.                                                | Another possible effect of a very weak signal.                                         | Antenna system needs attention (see above).                                                                                                       |
| Possible trouble with the Synthesizer                                                                | Possible cause                                                                         | Remedy                                                                                                                                            |
| Receiving is impossible even when the preset key (numeric key).                                      | Frequency for the broadcast station is not memorized.                                  | Check the station frequency and memorize it correctly.                                                                                            |
| The broadcast station frequency which has been memorized in the preset key (numeric key) is cleared. | Backup memory does not function due to poor or incorrect connection of the power cord. | Be sure to connect the power cord to the wall outlet, etc. from which the AC power is always supplied.                                            |

## Specifications

### FM Tuner Section

|                        |                                         |
|------------------------|-----------------------------------------|
| Tuning frequency range | 87.5 MHz–108 MHz                        |
| Antenna impedance      | 300 ohms balanced<br>75 ohms unbalanced |

#### Sensitivity

|                                  |                         |
|----------------------------------|-------------------------|
| Usable sensitivity (IHF); MONO   | 0.95 $\mu$ V (10.8 dBf) |
| 50 dB quieting sensitivity (IHF) |                         |
| Mono                             | 3 $\mu$ V (14.7 dBf)    |
| Stereo                           | 49 $\mu$ V (39.0 dBf)   |

#### Total harmonic distortion

|                       |      |
|-----------------------|------|
| Mono: (75 kHz Dev.)   |      |
| 50 Hz – 10,000 Hz     | 0.5% |
| Stereo: (75 kHz Dev.) |      |
| 50 Hz – 10,000 Hz     | 0.7% |

#### Signal-to-Noise ratio

|                       |       |
|-----------------------|-------|
| Mono: (75 kHz Dev.)   |       |
| 65 dBf input          | 76 dB |
| 85 dBf input          | 78 dB |
| Stereo: (75 kHz Dev.) |       |
| 65 dBf input          | 73 dB |
| 85 dBf input          | 75 dB |

#### Capture ratio

|                               |       |
|-------------------------------|-------|
| Alternate channel selectivity |       |
| IHF: $\pm$ 400 kHz            | 50 dB |

#### Stereo separation

|                   |       |
|-------------------|-------|
| 1,000 Hz          | 40 dB |
| 50 Hz – 10,000 Hz | 35 dB |

#### Frequency response

|                   |                 |
|-------------------|-----------------|
| 30 Hz – 15,000 Hz | +0.5 dB, – 2 dB |
|-------------------|-----------------|

|                                   |                |
|-----------------------------------|----------------|
| Image rejection ratio (98 MHz)    | 50 dB          |
| IF rejection ratio (98 MHz)       | 95 dB          |
| Spurious rejection ratio (98 MHz) | 80 dB          |
| AM suppression ratio              | 70 dB          |
| Sub-carrier suppression ratio     | 37 dB          |
| Output level/impedance            |                |
| at 1,000 Hz, 100% Dev.            | 0.6V/3.3 kohms |

### AM Tuner Section

|                           |                           |
|---------------------------|---------------------------|
| Tuning frequency range    |                           |
| 531 kHz – 1,602 kHz       | 9 kHz step                |
| 500 kHz – 1,610 kHz       | 10 kHz step               |
| Usable sensitivity        | 14 $\mu$ V, 400 $\mu$ V/m |
| Signal-to-Noise ratio     |                           |
| (30% Mod; 1 mV input)     | 50 dB                     |
| Total harmonic distortion | 0.5%                      |
| Image rejection ratio     | 40 dB                     |
| Selectivity (IHF)         | 25 dB                     |
| Output level/impedance    |                           |
| at 400 Hz, 30% mod        | 0.18V/3.3 kohms           |

### General

|                   |                                                                  |
|-------------------|------------------------------------------------------------------|
| Power consumption | 12W                                                              |
| Dimensions        | W: 420 mm (16-9/16")<br>H: 65 mm (2-9/16")<br>D: 251 mm (9-7/8") |
| Weight (Net)      | 2.8 kg (6.2 lb)                                                  |

#### Note:

Kenwood follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.